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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,581	06/19/2001	Rajiv Laroia	LAROIA 17-10-5-1 (375824/	2825
26479	7590	01/12/2005	EXAMINER	
STRAUB & POKOTYLO 620 TINTON AVENUE BLDG. B, 2ND FLOOR TINTON FALLS, NJ 07724			CHANG, RICHARD	
			ART UNIT	PAPER NUMBER
			2663	

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/884,581

Applicant(s)

LAROIA ET AL.

Examiner

Richard Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-12, 21-25, 35 and 36 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6, 7, 13, 14, 20 and 26-28 is/are rejected.
- 7) ☒ Claim(s) 3-5, 15-19 and 29-34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2-4, 5 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding to Claim 2, Claim 2 refers to itself in line 9.

Regarding to Claim 5, Claim 5 refers to itself in line 1.

Regarding to Claim 7, Claim 7 recites the limitation "said received" in line

1. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claims 1, 6, 13-14, 20 and 26-28 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by US patent No. 6, 487,252 ("Kleider et al.").

Regarding claims 1 and 27, Kleider et al. teach a method, apparatus (Fig. 1 as transmitter and Fig.3 as receiver) and system for an improved synchronization of an orthogonal frequency division multiplexed (OFDM) communication systems comprising of:

a receiver (30, an OFDM receiver) for receiving an OFDM signal containing the pilot sequence with assigned to frequency bins (a multitone synchronization signal) (See Fig. 3, Col. 4, lines 8-17),

a down-sampling and clock recovery element (61) (synchronization interval sampler) coupled to said receiver (See Fig. 6, Col. 6, lines 62-64),

an initial coarse estimation block (62,64,66,68 inside 35) performs best correlation for an initial time and the frequency offset estimation (an initial time and frequency offset estimator) connected to said sampler (61) and receiver (30) (See Fig. 3 and Fig. 4, Col. 4, lines 53-59 and Col. 5, lines 13-21), and

a refining estimation block (72,74,76 inside 35 as a time and frequency offset estimate refinement unit) performing best correlation for a fine time and the frequency offset estimation connected to the receiver (30), said sampler (61) and the initial coarse estimator (62,64,66,68 inside 35 as said estimator) (See Fig. 3 and Fig. 4, Col. 4, lines 53-59 and Col. 5, lines 21-31)

wherein a pilot tone assigned with frequency bins (a reference multitone synchronization signal) provided by a reference provider (33) is used by the initial coarse estimator (62,64,66,68 inside 35 as said estimator) and the refining

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estimation block (72,74,76 inside 35 as said refinement device) in calculating a time offset and a frequency offset of the pilot tone (said multitone synchronization signal), the receiver (30 said receiver) utilizing said time offset and said frequency offset to synchronize with said received OFDM signal (See Fig. 2, Col. 4, lines 51-68).

Regarding claims 14 and 28, Kleider et al. further teach that the reference signal is preferably the pilot sequence which may be pre-stored in receiver (30) wherein the reference provider (33) also includes a frequency bins assignment table (See Fig. 3, Col. 17, lines 35-37 and lines 46-50).

Regarding claims 6, 13, 20 and 26, Kleider et al. further teach that the coarse index FFTs (62) performs in FFT on the received signal and the coarse index FFTs (64) performs in FFT transform of on the referenced data (said reference multitone synchronization signal) (See Fig. 4, Col. 5, lines 8-9).

### ***Allowable Subject Matter***

5. Claims 2-5, 15-19 and 29-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if no art rejection can be applied.

6. Claims 8-12, 21-26 and 35-36 are allowed.

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**Conclusion**

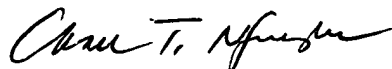
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Chang whose telephone number is (571) 272-3129. The examiner can normally be reached on Monday - Friday from 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T Nguyen can be reached on (571) 272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*RKC*  
rkc

Richard Chang  
Patent Examiner  
Art Unit 2663



CHAU NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600